

Name: _____

EXPONENTS TEST REVIEW PACKET

Packet will be collected the day of the test!

Powers with same base – **Add the exponents! (Don't forget the invisible 1's!)**

$$a^2 \cdot a \cdot a^4 =$$

$$b^4 \cdot b^2 \cdot b^5 =$$

Powers with same base (with coefficients) – **Add the exponents, but multiply the coefficients!**

$$(3x^2)(4x^3) =$$

$$2y^3 \cdot 6y^3 =$$

Power to a power – **Multiply the exponents!**

$$(c^2)^5 =$$

$$(k^3)^3 =$$

Product to a power – **Distribute the outer exponent! (Don't forget the invisible 1's!)**

$$(3ab)^3 =$$

$$(4x^2y^3z)^3 =$$

Dividing powers with same base – **Subtract the exponents! (Don't forget the invisible 1's!)**

$$\frac{x^6y^2}{x^2y} =$$

$$\frac{a^4b^2}{a^2b^2} =$$

Dividing powers with same base (with coefficients)

– **Subtract the exponents but simplify the coefficients!**

$$\frac{4x^4}{2x^2} =$$

$$\frac{3a^4b^3}{6b^2} =$$

Raising a quotient (division) to a power

– **Distribute the outer exponent to both top and bottom! (Don't forget the invisible 1's!)**

$$\left(\frac{xy}{3}\right)^3 =$$

$$\left(\frac{2x}{y^3}\right)^4 =$$

Zero as an exponent – **Anything raised to the power of zero equals 1!**

$$\left(\frac{3x^2y^5z^{-2}}{5xy^4z}\right)^0 =$$

$$5ab^0 =$$

Negative exponents – **A negative exponent causes things to 'flip' over the fraction bar!**

$$x^{-4} =$$

$$\frac{8}{2s^{-3}} =$$

$$(a^3b^{-2}c^4)^{-3} =$$

Simplify. Your answer should contain only positive exponents.

1) $m^2 \cdot 3m^0$

2) $p^0 \cdot p^3 p^3$

3) $3n^0 \cdot 3n$

4) $x^2 \cdot 3x^2$

5) $-2b^3 \cdot -3b^0 \cdot b$

6) $-3r^2 \cdot 3r^2$

7) $2x^2 \cdot x^3 x^3$

8) $n \cdot 2n^3$

9) $2m^{-1} \cdot (m^3 n^3)^0$

10) $(x^{-3} y^4 \cdot x^{-2} y^2)^{-3}$

11) $(2y^{-1} \cdot x^3 y^4)^{-1}$

12) $(x^4 y^{-3})^{-3} \cdot (x^{-1} y^4)^3$

13) $(n^3 \cdot 2m^{-3} n^{-3})^4$

14) $(x^2 y^3 \cdot 2x^0 y^{-2})^2$

15) $\frac{2y^3 \cdot 2x^4 y^3}{(2x^4 y^{-4})^2}$

16) $\frac{(a^2 \cdot 2a^2 b^{-1})^2}{(b^4)^4}$

17) $\frac{(y^2)^0}{x^0 y^2 \cdot 2x^4 y^{-4}}$

18) $\left(\frac{2y^3}{2x^2 y^3 \cdot 2x^4 y^4} \right)^3$

19) $\frac{(u^4 v^0)^4}{uv^{-4} \cdot 2u^{-2} v^2}$

20) $\left(\frac{u^0 v^4}{2u^0 v^3 \cdot 2u^0} \right)^2$

21) $\frac{2yx^2 z^0 \cdot yz^2}{(2xy^{-4} z^2)^{-2}}$

22) $\left(\frac{nm^0 p^0}{2m^{-4} n^{-3} p^4 \cdot 2m^4 n^{-1}} \right)^2$

23) $\frac{2x^{-3} y^{-4} z^{-1}}{2x^4 y^{-4} z^{-3} \cdot (2x^2 y^3 z^{-3})^{-2}}$

24) $\frac{(2prq^{-2})^2}{2p^{-2} q^{-2} r^2 \cdot 2qp^3 r^2}$

25) $\frac{2x^{-4} z^2}{x^{-2} y^4 z^2 \cdot xzy^2 \cdot (2y^{-2} z^3)^3}$

26) $\left(\frac{m^{-3} p^{-3} \cdot m^0 p^{-1} q^{-2}}{2m^2 p^4 q^2} \right)^{-1}$